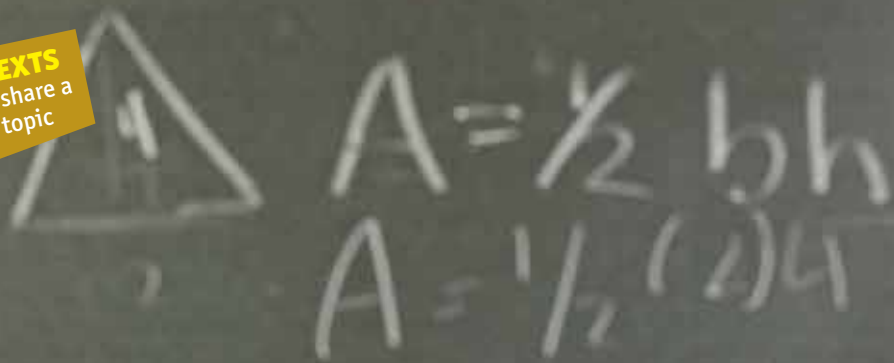



**PAIRED TEXTS**  
stories that share a  
theme or topic



A chalkboard with a triangle diagram on the left and two area formulas on the right. The first formula is  $A = \frac{1}{2}bh$  and the second is  $A = \frac{1}{2}(4)4$ .



Most teens  
feel the urge  
to sleep from  
3-7 a.m. and  
2-5 p.m.  
Could that be  
the reason  
you're always  
nodding off  
during fourth  
period?

# Hey You! Wake Up!

American kids aren't getting enough sleep.  
And it's a way bigger problem than you think.

By Matthew Hutson

**I**n 1964, a teenager in San Diego named Randy Gardner hatched an idea for a science fair project: He would see how long he could stay awake. By the end of the experiment, he had been up for 264 hours. That's 11 days!

Gardner had set a record for the longest period without sleep. But along the way, he was not quite himself. He became moody, forgetful, paranoid. At one point, he mistook a street sign for a person. On day four, he thought he was a running back for the San Diego Chargers.

You probably don't have plans to stay up 11 days straight, but if you're like most kids, you'll pull an occasional late-nighter to finish your history essay. Even on regular nights, you probably stay up too late. Teenagers need about nine hours of sleep a night. Yet a recent survey found that on weeknights, as few as 14 percent of teens get enough zzz's. They aren't the only ones who are tired, either. According to the Centers for Disease Control and Prevention, one-third of adults are chronically **sleep deprived** too.

## Permanent Damage

You know the effects of a crummy night's sleep: You feel groggy, forgetful, and clumsy. It's no wonder—24 hours without sleep leaves you as impaired as if you were legally drunk. In fact, lack of sleep can cause brain cells to *die*.

Adolescence is a bad time to put that kind of stress on your brain. During your teen years,

your brain changes rapidly, creating new pathways and pruning old ones. Over time, a **sleep deficit** has been shown to cause permanent damage. It also puts teenagers at risk for depression, anxiety, obesity, bad grades, sports injuries, low self-esteem, and serious diseases. In adults, it affects concentration, health, job performance, and mood.

Consider this: The police and military sometimes use sleep deprivation to get information out of suspects. After hours or days of being kept awake, suspects often break down and tell an interrogator anything he or she wants to know. Need more proof that sleep is important? Drowsy driving causes more than 100,000 car accidents every year.

## A Wonky Clock

So how do you know if you are sleep deprived? If it takes five alarms to get you up in the morning, or if you're falling asleep in class and drooling on your desk, chances are you're not getting enough shut-eye.

Getting adequate sleep can change your life. While you sleep, your body re-energizes, builds muscle and bone, and strengthens your immune system. Your brain enhances memories and solves problems. Studies show that you're more likely to remember something if you sleep after learning it. (Maybe a good night's rest is all you need to memorize the Gettysburg Address!)

Unfortunately, getting *more* sleep can feel like an uphill battle, as if you

Have you ever tried counting sheep to fall asleep? You're better off picturing a tranquil scene, like a quiet beach.



body—and the world—is working against you.

This is why: Sleep is regulated by two systems. The first system tells your body that the longer you're awake, the more you need to sleep. The second is what's known as a **circadian rhythm**—that is, a 24-hour cycle. (*Circadian* comes from the Latin roots *circa*, meaning “around,” and *dies*, meaning “day.”) This rhythm is controlled by an internal body clock that tells you when it's time to be awake and asleep.

During puberty, that clock shifts. Suddenly you feel like going to bed one to three hours later. But since school starts the same time it always has, getting enough sleep becomes difficult. An irregular schedule—such as sleeping until noon on Saturdays and going to bed at different times during the week—can also disrupt your circadian rhythm and make you feel exhausted.

## A Perfect Storm

There may be something else contributing to your grogginess: technology. In a recent study, a group of 100 teenagers did an average of four tech-related activities

after 9 p.m. They went online, watched TV, played video games, and used cell phones. The more tech they used, the harder it was for them to fall asleep.

Part of the problem is that tech-related activities get your mind all revved up, making it difficult to relax. The other problem is that light—particularly the blue-wave light that many gadgets produce—tells your body it's daytime. This prevents the release of **melatonin**, a **hormone** triggered by darkness that makes you drowsy.

Like technology, anxiety can interfere with your brain's ability to turn off. You may lay in bed for hours worrying about an upcoming math test or a fight you just had with your BFF.

Mary Carskadon, a professor of psychiatry and human behavior at Brown University, calls the factors that affect sleep in teens a “perfect storm” for a sleep deficit. And while sleep deprivation may not kill you, it does kill other animals. Consider this: Flies and rats die sooner without sleep than they do without food.

So go to bed—before you find yourself talking to stop signs! ●

## SLEEP DISASTERS

Bad things can happen when people are too tired. (Very bad things!)



### COLGAN PLANE CRASH

**DATE:** February 12, 2009

**WHAT HAPPENED:** A small plane crashed outside Buffalo, New York. The first officer and the captain were heard yawning on the cockpit voice recorder before the plane nose-dived. Pilots are required to have a certain amount of time between flights in order to sleep, but neither pilot had had adequate rest during that period.

**HUMAN TOLL:** 50 killed



### EXXON VALDEZ OIL SPILL

**DATE:** March 24, 1989

**WHAT HAPPENED:** In violation of federal law, Gregory Cousins had been awake for at least 16 hours when he failed to make a turn and caused the tanker he was steering to run aground in Alaska. Eleven million gallons of oil spilled across 1,300 miles of coastline. Hundreds of thousands of animals died. It cost \$2.5 billion to clean up.

**HUMAN TOLL:** 4 died during the cleanup



### CHALLENGER EXPLOSION

**DATE:** January 28, 1986

**WHAT HAPPENED:** About 73 seconds after liftoff, the NASA space shuttle *Challenger* blew apart in the sky, while thousands of spectators watched. After the tragedy, it was found that long, grueling shifts and exhaustion had caused workers to make mistakes and errors in judgment.

**HUMAN TOLL:** 7 killed

—Lauren Magaziner

# The Story of Sleep

## What Keeps You Awake at Night?

**1**  
**YOUR SCREENS**  
prevent sleepiness.

**Within an hour of going to bed:**



**50%**  
of teens watch TV almost every night

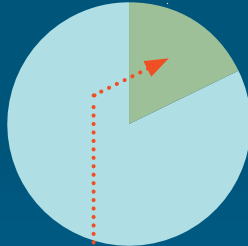


**55%**  
of teens use a computer at least a few nights a week



**56%**  
of teens text or use a cell phone almost every night

**2**  
**YOUR FRIENDS**  
wake you up.



**18%**  
of teens are awakened by a call, text, or e-mail a few nights a week

**3**  
**YOUR FOOD**  
energizes you.

**Sugary and caffeinated foods keep you up.**



**Better choices:**  
herbal tea, popcorn, yogurt



**4**  
**YOUR BED**  
wants you to study.

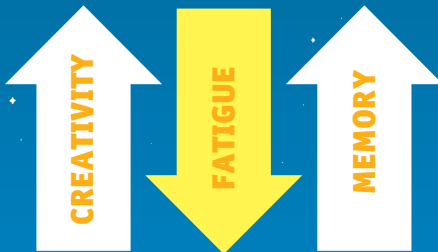
**Using your bed for homework (or anything other than sleeping) means tucking in won't trigger sleep.**



## NAP TIME

(not just for your baby sister!)

**10- to 20-minute mid-day naps can:**



Just don't nap too long or too late or you won't be able to sleep later!

## FAMOUS NAPPERS



**ALBERT EINSTEIN**  
mega-genius



**BILL CLINTON**  
former president



**LADY GAGA**  
pop diva

## Thomas Edison stole your zzz's.

**1879** When Thomas Edison created the first practical incandescent light bulb, human society started to change. Activities were no longer limited to daylight hours, and people began sleeping three fewer hours a night. Thanks, Edison.



STATISTICS FROM THE NATIONAL SLEEP FOUNDATION; NAP FACTS FROM THE CENTERS FOR DISEASE CONTROL

## CONTEST

**Are You Tired?** In three to five paragraphs, explain whether you are sleep deprived and describe three ways to either maintain your good sleep habits or improve your sleep habits. Send your response to **SLEEPY CONTEST**. Five winners will each get *The Mysterious Benedict Society* by Trenton Lee Stewart. See page 2 for details.



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